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MEETING NOTES

TO: Distribution **DATE:** July 25, 1994

FROM: Philip Nixon **PROJECT:** Solar Pond IM/IRA

MEMO #: SP307:072694.02

ATTENDANCE:

Phil Nixon
Andy Ledford, EG&G
Harlen Ainscough, CDH
Arturo Duran, EPA
Steve Keith, EG&G
Frazer Lockhart, DOE
Steve Howard, DOE/SAIC
Terry Ruiter, PRC

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SUBJECT: Weekly Status Meeting

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1) Comments on Previous Meeting Minutes

Arturo Duran indicated that the previous meeting minutes did not indicate that the modelling under saturated conditions remained an open issue. He noted that the selection and use of K_d values was still an open issue which may be re-evaluated during the dispute resolution or the design activities.

Arturo Duran also indicated that EPA had requested time to review the cost estimate information that was provided at the meeting held on July 19, 1994. The meeting minutes did not capture this information. The group confirmed that the EPA had indicated that they needed a period to review the estimate at the July 19, 1994 team meeting.

Harlen Ainscough indicated that the meeting minutes from the July 19, 1994 team meeting accurately summarized the States position on the ground water comparison criteria. He re-iterated that there will be two Points of Compliance (POC):

1. Toe of the engineered cover - to monitor the performance of the closure

2. Down gradient at location of the ITS - to monitor compliance with State approved ground water protection standards

Harlen Ainscough asked what had been done to model the durability of the engineered cover. Phil Nixon responded that erosion modelling (wind & water) had been performed on the conceptual design and would be further evaluated throughout the detailed design process. It was discussed that this modeling may need to be iterative to help determine the final design of the thickness for each layer of the engineered cover.

2) Discussion Concerning the Potential Carbon Tetrachloride Contamination

Phil Nixon provided data on the organic contaminants that considered Dense Non-aqueous Phase Liquids (DNAPLs) which have been detected in the vicinity of Solar Evaporation Pond (SEP) 207-C. The EPA recognizes that DNAPLs are very difficult to extract from ground water and has established guidance that these constituents should be considered for remediation if their percentage of aqueous saturation is greater than 1 percent. The ground water monitoring data for 1992 and 1993 indicates that only carbon tetrachloride exceeded the 1 percent value in one well in 1992 (1.4%). All of the DNAPLs showed a trend in 1993 towards decreasing concentrations, including carbon tetrachloride which had a percentage that was significantly less than 1 percent (0.08%). It was agreed, based on the decreasing trend in the DNAPL

3) Phil Nixon provided information concerning the upgradient ground water concentrations for the OU4 contaminants of concern (COCs) from 3 upgradient ground water wells in the vicinity of OU4. This information was provided for informational purposes and does not require review or action.

4) Modeling Results incorporating Sludge in the IM/IRA

Phil Nixon presented the results of the modelling under unsaturated conditions that estimated the potential for leachate generation when untreated sludge was consolidated beneath the engineered cover. The assumptions that were used for the modelling include:

1. Data for metals was from the Haliburton database

2. Data for radionuclides was from the Weston Database since this is the only isotope specific data

3. The sludge was assumed to be dewatered and dried, but not solidified

4. The sludge was rinsed during dewatering so that any liquid remaining in the sludge after dewatering would be clean water as opposed to contaminated SEP liquids.

The model was run under 3 scenarios:

1. No Action - The sludge was placed on top of intact liners.

2. Engineered cover without an low-permeability layer - The sludge was mixed with excavated soils and crushed liners. The engineered cover would not have a low permeability layer.

3. Engineered cover with low-permeability layer - The sludge was mixed with contaminated soils and crushed liners. The engineered cover design included a low permeability layer.

The modelling results indicate that the engineered cover design without the low-permeability layer would not meet the ground water comparison criteria at the toe of the engineered cover. However, the no action and the engineered cover with a low-permeability layer would meet the ground water comparison criteria at the toe of the engineered cover. The explanation for this is that under the no action scenario the liner continues to function as a low permeability layer which impedes infiltration. This is not the case for both the engineered cover

scenarios where the liners must be excavated and crushed in order to prevent differential settlement of the engineered cover. In addition the mass loading of contaminants is higher for the engineered cover scenarios because these scenarios include the volume of hillside contaminated soils. It was agreed that these modeling results indicate that DOE should not have to solidify to sludge prior to consolidating the dewatered sludge beneath the engineered cover. In addition, the engineered cover will be designed with a low-permeability layer.

4) Identification of Additional Technical Data that Needs to be Re-evaluated and Establishing a Path Forward for Concluding the Dispute Resolution Review Period

Arturo Duran stated that the EPA would like the DOE to conduct a feasibility analysis with respect to the use of upgradient ground water control measures that may eliminate the need for the subsurface drainage layer. It was discussed that this might improve the engineered cover by reducing the height and slope because the total excavation of the IHSS 101 would not be required. Arturo Duran also indicated that this might allow the team to return to the strategy for clean closing SEP 207-C to reduce the impacts from the hillside stability concerns in the area of SEP 207-C. Frazer Lockhart Requested that the design criteria be established. It was discussed that the design criteria included the following:

1. The upgradient ground water control mechanism must prevent ground water from contacting the consolidated contaminated media for the 1000 year system design life

2. The ground water would have to be collected and removed from the area so that the ground water head build-up would not cause a failure of the control mechanism

3. Any mechanical device that was needed to remove ground water from the drainage system would not have to function for the 1000 year time period because it will be assumed that the ground water at the Rocky Flats will be remediated

4. The upgradient ground water control mechanism needs to be tied into competent bedrock (estimated 20 to 30 feet)

5. The upgradient ground water control method must function to dewater the north hillside under the same expected ground water rise that was used to design the subsurface drainage layer.

It was agreed that an analysis would be conducted that focussed on the constructibility of a upgradient ground water control system. If the constructibility analysis indicated that these measures were feasible and desirable, then an assessment would be conducted with respect to the design and performance evaluation of these potential systems. It was discussed that the performance assessment of these systems would require the construction of a ground water flow model which may be difficult based on the amount of existing data and the complexity of the site Hydrogeology. It was agreed that the constructibility analysis would be completed before the difficult performance assessment activities were commenced. DOE committed to having the constructability analysis completed within a 2 week period. It was also agreed that this activity was out of the technical scope of the presumed remedy that resulted from the dispute resolution that occurred in the summer of 1993. As such DOE needed an additional period to perform the analysis. Doe would place a two week activity on the project schedule that would extend the future IM/IRA deliverables out by 2 weeks.

It was agreed that CDH would change the wording of the dispute resolution letter reflecting that DOE has met the IAG milestone date of May 27, 1994 for the draft IM/IRA-EA Decision Document and will provide a new secondary deliverable on September 9, 1994. The new secondary deliverable must include:

1. Responses to the regulatory agency comments on the draft IM/IRA-EA Decision Document

2. Summary of the results and resolutions from the dispute resolution process

It was discussed that the new secondary deliverable may also discuss areas where the proposed IM/IRA-EA Decision Document will be modified (DOE may elect to provide significantly revised pages or sections). It was also discussed that the DOE,CDH, and EPA would negotiate the submittal dates for the subsequent IAG milestones when the dispute resolution period concludes and the extent of the changes can be assessed.

Philip A. Nixon